REMARKS:

In the outstanding Office Action, the Examiner rejected claims 1-13. Claims 1-3, 8, 9, 12 and 13 have been amended, and claims 5 and 7 are cancelled without prejudice. Thus, in view of the forgoing, claims 1-4, 6 and 8-13 remain pending for which reconsideration is requested. No new matter has been added. The Examiner's rejections are traversed below.

REJECTION UNDER 35 U.S.C. §112¶2:

At page 2 of the outstanding Office Action, the Examiner rejected claim 9 for being indefinite.

Claim 9 is hereby amended to recite, a method of the present invention where "each matrix is combined with a multiplication mathematical operation" and "only those assignments are taken into account in which the matrix entry for the last phoneme and the last grapheme exceeds a prescribed threshold value after multiplication of matrices".

Accordingly, withdrawal of the rejection is respectfully requested.

REJECTION UNDER 35 U.S.C. §102(b):

Claims 1, 4, 5 and 12 are rejected under 35 U.S.C. § 102(b) as being anticipated by Besling (A Statistical Approach to Multilingual Phonetic Transcription). The rejection is traversed and reconsideration is requested.

Besling discusses a statistical method for generating phonetic transcriptions from written words by allocating phonemes to graphemes using an algorithm for dynamic time matching.

The present invention is directed to assigning graphemes to phonemes within a word where the assignment of graphemes to phonemes within the word is corrected with aid of position-dependent relative frequencies.

The Examiner compares the Besling method for allocating phonemes to graphemes using an algorithm for dynamic time matching with the present invention. According to the Besling method, in order to make use of transcriptions in a background lexicon, a matching between letters and sequences of phonemes is obtained using an alignment between the graphemic and the phonetic representations (see, page 368, last paragraph). The Besling alignment is done by dynamic processing where the phonemes are allocated to the graphemes which produce them by means of an algorithm for dynamic time matching (Dynamic Time Warping) where relative frequencies are used for the allocations (see, page 369, lines 3-9 of Besling). This means that the Besling method is directed to a phonetic transcription by

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allocating phonemes to the graphemes that produces them using dynamic time matching where relative frequencies are used.

As recited in independent claim 1 and 12, the present invention includes "a dynamic time warping algorithm to phonetically transcribe the words by assigning phoneme sequences to grapheme sequences of the words, where the assignment of graphemes to phonemes within a word is corrected with aid of position-dependent relative frequencies". This enables a method, where the frequency with which a grapheme is allocated to a phoneme is based on its position within a grapheme group. Further, this allows the corrected assignments to be used for iterative improvements of the relative frequencies and the assignment. The Besling method does not teach or suggest. "...assigning phoneme sequences to grapheme sequences of the words, where the assignment of graphemes to phonemes within a word is corrected with aid of position-dependent relative frequencies".

It is therefore respectfully submitted that the independent claims 1 and 12 are patentable over Besling.

For at least the above-mentioned reasons, claims depending from independent claims 1 and 12 are patentably distinguishable over Besling. The dependent claims are also independently patentable. For example, as recited in claim 4, "after execution of the assignment of graphemes to phonemes for each word of the lexicon, these assignments are used to determine the position-dependent relative frequency...". The Besling method does not teach or suggest, "allocation of graphemes to phonemes within a word corrected using position-dependent relative frequencies" (claim 1 upon which claim 4 depends), where "after execution of the assignment of graphemes to phonemes for each word of the lexicon, these assignments are used to determine the position-dependent relative frequency..." (claim 4). This allows the position-dependent frequencies to be determined anew for each word of the lexicon from the corrected assignments.

Therefore, withdrawal of the rejection is respectfully requested.

REJECTION UNDER 35 U.S.C. §103(a):

Claims 2, 3, 6-11 and 13 are rejected under 35 U.S.C. §103(a) as being unpatentable over Besling in view of Sakoe et al. (Dynamic Programming Algorithm Optimization for Spoken Word Recognition). The rejection is traversed and reconsideration is requested.

Sakoe et al. discusses a dynamic programming algorithm optimization for spoken word

recognition based on a time-normalization algorithm.

The Examiner acknowledges that the Besling method does not teach the details of the dynamic time warping algorithm used to align the phonemes to the graphemes, thus relies on the Sakoe et al. reference as discussing the same. In the Sakoe et al. dynamic programming, timing differences between two speech patterns are eliminated by warping the time axis of one so that the maximum coincidence is attained with the other (see, page 43, section I of Sakoe et al.).

The combination of the Besling and Sakoe et al. methods results in a method for generating phonetic transcriptions from written words by allocating phonemes to graphemes using an algorithm for dynamic time matching, where the dynamic programming is based on a time-normalization algorithm.

As recited in amended independent claims 2 and 13, the method of the present invention includes "using the matrix elements along the path to define the assignment of graphemes to phonemes of the word, where the assignment of graphemes to phonemes within a word is corrected with aid of position-dependent relative frequencies".

The combination of the Besling and Sakoe et al. methods does not teach or suggest, using the matrix elements along the path to define the assignment of graphemes to phonemes of the word "where the assignment of graphemes to phonemes within a word is corrected with aid of position-dependent relative frequencies". Accordingly, the Applicants respectfully assert that the Examiner has not met the burden of establishing a prima facie case of obviousness. In re Fritch, 23 U.S.P.Q. 2d 1780, 1783 (Fed. Cir. 1992).

It is submitted that the claims are patentably distinguishable over the combination of the Besling and Sakoe et al. references. Thus, withdrawal of the rejection is respectfully requested.

CONCLUSION:

Accordingly, claims 1-3, 8, 9, 12 and 13 have been amended and claims 5 and 7 are cancelled without prejudice. Thus, claims 1-4, 6 and 8-13 remain pending for which reconsideration is requested.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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